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APPROVING THE AMENDMENTS TO THE TRAINING REGULATIONS FOR MECHATRONICS SERVICING NC III

WHEREAS, TESDA Board Resolution No. 2006-28 was issued approving and promulgating the Training Regulations for Mechatronics Servicing NC III last 14 December 2006 during the 53rd TESDA Board Meeting;

WHEREAS, it is the policy of TESDA to review after three (3) years any Training Regulations (TRs) promulgated by the TESDA Board in fast-changing industries like ICT and electronics;

WHEREAS, the Mechatronics and Robotics Society of the Philippines, Inc. (MRSP) Expert Panel, with the assistance of the Qualifications and Standards Office (QSO) of TESDA, has recommended the amendments to the existing Training Regulations for Mechatronics Servicing NC III;

WHEREAS, during the Special Standards-Setting and System Development (SSSD) Meeting held on 04 February 2015 at 11:00 a.m., the Committee favorably endorsed the following amendments to the abovementioned Training Regulations for Mechatronics Servicing NC III;

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments		
Qualification Title	1		
Mechatronics Servicing NC III	Mechatronics Servicing NC III		
Job Title	1		
 Mechatronics Technician 3 Industrial Automation Technician 	Mechatronics and Automation Programmer-Technician		

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Amendments
n
The Mechatronics Servicing NC III Qualification consists of competencies that must be possessed to enable a person to develop mechatronics and automation control circuits and PLC software programs, develop motion control and system configuration on mechatronics and automation system as well as to maintain and repair PLC-based mechatronics and automation devices.
L
Basic Competencies
No Amendments
Common Competencies
(Prescribed competencies for NC III) plus one unit of competency -

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Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments Core Competencies	
Core Competencies		
 Develop Mechatronics Control Circuits and Software Application Programs Maintain and Repair Mechatronics Devices 	 Develop Mechatronics and Automation Control Circuits and PLC Application Programs Develop Motion Control and System Configuration Maintain and Repair PLC-based Mechatronics and Automation System 	
Section 2 - Competency Standards	J	

Updates/Changes were made consistent with the proposed amendments on Basic, Common and Core Competencies.

Section 3 - Training Standards

3.1 Curriculum Design

Nominal Training Duration

36 hrs – Basic Competencies 60 hrs – Common Competencies 96 hrs – Core Competencies 192 hrs – Total	32 Hours (Basic Competencies) 60 Hours (Common Competencies) 104 Hours (CORE Competencies)	
	196 Hours – TOTAL	
Course Structure		
The course structure has four (4) columns namely – 1) Unit of competency; 2) Learning outcome; 3) Methodology; and 4) Assessment approach.	The course structure has seven (7) columns namely – 1) Unit of competency; 2) Learning outcome; 3) Learning content; 4) Practical activities; 5) Methodology; 6) Assessment approach; and 7) Nominal duration.	

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Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
3.2 Training Delivery	
 The delivery of training should adhere to the design of the curriculum. Delivery should be guided by the 10 basic principles of the competency-based TVET. The training is based on curriculum developed from the competency standards: Learning is modular in its structure; Training delivery is individualized and self-paced; Training materials are directly related to the competency standards and the curriculum modules; Assessment is based in the collection of evidence of the performance of work to the industry required standard; Training is based both on and off-the- job components; Allows for recognition of prior learning (RPL) or current competencies; Training allows for multiple entry and exit; and Approved training programs are nationally accredited. 	 The delivery of training shall adhere to the design of the curriculum. Delivery shall be guided by the principles of competency-based TVET. Course design is based on competency standards set by the industry or recognized industry sector; (Learning system is driven by competencies written to industry standards); Training delivery is learner-centered and should accommodate individualized and self-paced learning strategies; Training can be done on an actual workplace setting, simulation of a workplace and/or through adoption of modern technology; Assessment is based in the collection of evidence of the performance of work to the industry required standards; Assessment of competency takes the trainee's knowledge and attitude into account but requires evidence of actual performance of the competency as the primary source of evidence; Training program allows for recognition of prior learning (RPL) or current competencies; and Training completion is based on satisfactory performance of all specified competencies.

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Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
The competency-based TVET system recognizes various types of delivery modes, both on and off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities may be adopted when designing training programs: • The dualized mode of training delivery is preferred and recommended. Thus programs would contain both in-school and in-industry training or fieldwork	2. The competency-based TVET system recognizes various types of delivery modes, both on-and off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities and their variations/ components may be adopted singly or in combination with other modalities when designing and delivering training programs:
 components. Details can be referred to the Dual Training System (DTS) Implementing Rules and Regulations; Modular/self-paced learning is a competency-based training modality wherein the trainee is allowed to progress at his own pace. The trainer only facilitates the training delivery; 	 2.1. <u>Institution- Based</u>: Dual Training System (DTS)/ Dualized Training Program (DTP) which contain both in-school and in- industry training or fieldwork components. Details can be referred to the Implementing Rules and Regulations of the DTS Law and the TESDA Guidelines on the DTP;
 Peer teaching/mentoring is a training modality wherein fast learners are given the opportunity to assist the slow learners. Supervised industry training or on-the-job training is an approach in training designed to enhance the knowledge and skills of the trainee through actual experience in the workplace to acquire a specific competencies prescribed in the training regulations. 	 Distance learning is a formal education process in which majority of the instruction occurs when the students and instructor are not in the same place. Distance learning may employ correspondence study, audio, video, computer technologies or other modern technology that can be used to facilitate learning and formal and non-formal training. Specific guidelines on this mode shall be issued by the TESDA Secretariat;

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Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
• Distance learning is a formal education process in which majority of the instruction occurs when the students and instructors are not in the same place. Distance learning may employ correspondence study, or audio, video or computer technologies.	• The traditional classroom-based or in- center instruction may be enhanced through use of learner-centered methods as well as laboratory or field-work components.
3.3 Trainee Entry Requirements	
 Must have completed training in Mechatronics Servicing NCII or equivalent in experience Must be physically and mentally fit to undergo training With good moral character 	 Must have completed training in Mechatronics Servicing NCII Can communicate orally & in writing Can perform basic mathematical computations This list does not include specific institutional requirements such as written entrance exam, and other that may be required of the trainees by the school or training center delivering TVET program.

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xisting Pr (Boa	romulgated Training Regulations ard Resolution No. 2006-28)		Amendments
4 List of (Minimu	Tools, Equipment and Materia m quantity recommended for a Clas	ls s size of 25 tr	ainees)
	TOOLS		TOOLS
QTY.	ITEM	QTY.	ITEM
25 pcs	Long-nosed pliers	10 pcs	Long-nosed pliers
25 pcs	Diagonal cutters	10 pcs	Diagonal cutters
25 pcs	Standard screwdrivers	10 pcs	Standard screwdrivers
25 pcs	Phillips screwdrivers	10 pcs	Phillips screwdrivers
25 pcs	Electrical pliers	10 pcs	Electrical pliers
25 pcs	Soldering iron	10 pcs	Soldering iron
25 pcs	Adjustable wrench	10 pcs	Adjustable wrench
5 pcs	Wire stripper	5 pcs	Wire stripper
5 pcs	Crimping tool	5 pcs	Crimping tool
5 sets	Allen wrench	5 sets	Allen wrench
5 sets	Jeweller's screwdrivers	5 sets	Precision screwdrivers
5 sets	Combination wrench, metric		
5 sets	Combination wrench, English		
			EQUIPMENT
EQUIPMENT		QTY.	ITEM
QTY.	ITEM	5 sets	PLC system

	EQUIPMENT
QTY.	ITEM
5 sets	PLC system
5 sets	PLC configuration software
25 pcs	Multimeters
5 pcs	Signal generators
1 pc.	Oscilloscope
Ener	Transmitters or
5 pcs	Transducers
1 pc.	Air compressor
25 pcs	Regulated power supplies
5 pcs	Cylinder Actuator
1 pc.	Stepper motor
1 pc.	Servomotor
1 pc.	Variable frequency drive
25 pcs	Buzzers

EQUIPMENT		
ITEM		
PLC system		
PLC software		
Multimeters		
Transmitters or		
Transducers		
Air compressor		
Regulated power supplies		
Cylinder Actuator		
Stepper motor		
Servomotor		
Variable frequency drive		
Buzzers		
Industrial panel switches		
Indicating lamps		

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(Boa	rd Resolution No. 2006-28)		Amendments
(200	EQUIPMENT		EQUIPMENT
QTY.	ITEM	QTY.	ITEM
25 pcs	Industrial panel switches	10 pcs	Directional solenoid valves
25 pcs	Indicating lamps	5 pcs	Filter-Regulator-Lubricator se
5 pcs	Directional solenoid valves	10 pcs	Limit switches
5 pcs	Filter-Regulator-Lubricator set	10 pcs	Photoelectric switches
5 pcs	Pressure gage	10 pcs	Proximity switches
5 pcs	Limit switches	25 pcs	Relays
5 pcs	Photoelectric switches	10 pcs	Magnetic contactors
5 pcs	Proximity switches	10 pcs Desktop/Laptop PC	
25 pcs	Relays	5 pcs. Safety helmet	
5 pcs	Magnetic contactors	5 pcs. Safety shoes	
25 pcs	Timers	5 pcs. Safety harness	
25 pcs	Counters	5 pcs.	Safety glasses/goggles
5 pcs	Desktop/Laptop PC	5 pcs.	Ear plugs/ear muffs
1 pc.	Safety helmet	5 pcs.	Gas mask
1 pc.	Safety shoes		-
1 pc.	Safety harness		
1 pc.	Safety glasses/goggles		
1 pc.	Ear plugs/ear muffs		
	MATERIALS		
QTY.	ITEM		
1 spool	Solder lead	MATERIALS	
1 spool	Shielded cable	OTY. ITEM	
1 lot	Terminal lugs	1 spool	Solder lead
1 lot	Terminal strips/blocks	1 spool	Shielded cable
25 pcs	Cotton gloves	1 lot	Terminal lugs
1 lot	Plastic tubing	1 lot	Terminal strips/blocks
1 lot	Quick-connect fittings	25 pcs	Cotton gloves
25 rolls	Electrical tape	1 lot	Plastic tubing
1 lot	Wire markers	1 lot	Quick-connect fittings
1 lot	Cable ties	10 rolls	Electrical tape
	-		

1 lot

1 lot

Wire markers

Cable ties

1 pc.

1 pc.

Gas mask

Face shield

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Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments	
3.6 Trainer's Qualification		
 Mechatronics Servicing NC III Trainer's Qualification TQ III 1. Must be a holder of TESDA Mechatronics Technician Certificate NCIII, Certified Mechatronics Technician or Certified Mechatronics Engineer by a nationally- recognized body, or its equivalent in other countries. 2. Must have completed a Trainor's Training course or has been a technical trainor for at least 3 years. 3. Must have at least 2-years relevant industry experience.* 4. Must be physically & mentally fit. * Optional: Only when required by the hiring institution. 	 Mechatronics Servicing NC III Trainer's Qualification TQ I 1. Holder of National TVET Trainer's Certificate (NTTC) Level 1 in Mechatronics Servicing NC III 2. Must have at least 2 years mechatronics and automation industry experience. 	
3.7 Institutional Assessment		
Institutional assessment is undertaken by trainees to determine their achievement of units of competency. A certificate of achievement is issued for each unit of competency.	Institutional assessment is undertaken by trainees to determine their achievement of units of competency. A certificate of achievement is issued for each unit of competency.	
	assessment may be considered as evidence for the assessment for national certification. As a matter of policy, graduates of programs registered with TESDA under this training regulation are required to undergo mandatory national competency assessment upon completion of the program.	

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Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
Section 4. National Assessment and Co	ertification Arrangements
4.1 To attain the National Qualification of	4.1 To attain the National Qualification of
Mechatronics Servicing NC III, the	Mechatronics Servicing NC III, the
candidate must demonstrate in all the	candidate must demonstrate in all the
units listed in Section 1. Successful	units listed in Section 1. Successful
candidates shall be awarded a	candidates shall be awarded a
National Certificate III signed by the	National Certificate III signed by the
TESDA Director General.	TESDA Director General.
4.2 The qualification of Mechatronics	4.2 The qualification of Mechatronics
Servicing NC III may be attained	Servicing NC III may be attained
through:	through:
4.2.1. Accumulation of Certificates of	4.2.1. Accumulation of Certificates of
Competency (COCs) in all the	Competency (COCs) in all the
following units of competencies:	following units of competencies:
4.2.1.1. Install Mechatronics Devices4.2.1.2. Configure and Test Mechatronics Devices	COC #1. Develop Mechatronics and Automation Control Circuits and PLC Application
 4.2.1.3. Develop Mechatronics	COC #2. Develop Motion Control an
Control Circuits and	System Configuration
Software Application	COC #3. Maintain and Repair PLC-
Programs 4.2.1.4. Maintain and Repair	based Mechatronics and
Machatronics Devices	Automation System
Successful candidates shall be	Successful candidates shall be
awarded a Certificate of	awarded a Certificate of
Competency (COC) in each of the	Competency (COC) in each of the
core units.	core units.
4.2.2. Demonstration of competence	4.2.2. Demonstration of competence
through project-type assessment	through project-type assessment
covering all the units required in	covering all the units required in
the qualification.	the qualification.

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Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
4.3 Accumulation and submission of all COCs acquired for the relevant units of competency comprising a qualification, an individual shall be issued the corresponding National Certificate.	4.3 Accumulation and submission of all COCs acquired for the relevant units of competency comprising a qualification, an individual shall be issued the corresponding National Certificate.
4.4 Assessment shall focus on the core units of competency. The basic and common units shall be integrated or assessed concurrently with the core units.	4.4 Assessment shall focus on the core units of competency. The basic and common units shall be integrated or assessed concurrently with the core units.
4.5 The following are qualified to apply for assessment and certification:	4.5 The following are qualified to apply for assessment and certification:
 4.5.1. Graduate of formal, non-formal, and informal including enterprise-based training programs. 4.5.2. Experienced workers (wage 	 4.5.1. Graduate of formal and non- formal including enterprise- based training programs. 4.5.2. Experienced workers (wage employed or self-employed) 4.6 The guidelines on assessment and certification are discussed in detail in the "Procedures Manual on Assessment and Certification" and "Guidelines on the Implementation of the Philippine TVET Qualification and Certification System (PTQCS)".
4.6 The guidelines on assessment and certification are discussed in detail in the "Procedures Manual on Assessment and Certification" and "Guidelines on the Implementation of the Philippine TVET Qualification and Certification System (PTQCS)".	

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APPROVING THE AMENDMENTS TO THE TRAINING REGULATIONS FOR MECHATRONICS SERVICING NC III

WHEREAS, during the 91st TESDA Board Meeting on 16 June 2015 at 02:00 p.m., the TESDA Board considered the proposed amendments and approved the promulgation of the Training Regulations for Mechatronics Servicing NC III;

NOW, THEREFORE, BE IT RESOLVED, AS IT IS HEREBY RESOLVED, that that the TESDA Board in its meeting today, 16 June 2015 at 02:00 p.m., approves the aforementioned amendments to the Training Regulations for Mechatronics Servicing NC III;

BE IT RESOLVED FINALLY that copy of this Resolution and accompanying Training Regulations be published and disseminated to all concerned, and the same shall be effective fifteen (15) days upon publication. All programs registered under the abovementioned training regulations must comply with requirements of the aforementioned training regulations as amended. Graduates of TVET courses covered by the aforementioned training regulations as amended shall be required to undergo mandatory assessment under the national assessment and certification program. All programs registered on the current Mechatronics Servicing NC III will be required to migrate to the amended TRs within one (1) year from the date of effectivity of this resolution.

Adopted this 16th day of June 2015.

RINALYN B. DUMOL Board Secretary VI

Attested by:

SEC. EMMANUEL JOEL J. VILLANUEVA Alternate Chair, TESDA Board Director General, Technical Education and Skills Development Authority (TESDA)